

**ANTECEDENTS AND OUTCOMES OF  
KNOWLEDGE RETENTION**

**by  
CHUAH CHAI WINN**

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## **DEDICATION**

Specially dedicated to:

My beloved parents

for their sacrifices and unconditional love.

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## **ABSTRAK**

Kajian ini bertujuan untuk menentukan faktor-faktor yang membolehkan kejayaan pengekaln pengetahuan dalam syarikat, dan juga hasil pengekaln pengetahuan terhadap prestasi syarikat. Faktor-faktor yang dikaji adalah budaya syarikat iaitu budaya kerjasama dan budaya kepercayaan, struktur syarikat iaitu keformalan dan pemusatan, teknologi maklumat, dan kebolehan proses-proses pengetahuan termasuk proses pemerolehan, penukaran, penggunaan dan perlindungan. Data dikumpul daripada 101 syarikat-syarikat di Semenanjung Malaysia. Keputusan kajian ini menunjukkan bahawa budaya kerjasama, technology maklumat, proses penukaran pengetahuan dan proses perlindungan pengetahuan menyebabkan kejayaan pengekaln pengetahuan dalam bentuk jelas. Sebaliknya, hanya factor budaya kerjasama menyebabkan kejayaan pengekaln pengetahuan dalam bentuk tersirat. Selain itu, kajian ini juga membuktikan bahawa kedua-dua bentuk pengetahuan yang jelas dan tersirat, boleh meningkatkan prestasi syarikat. Dengan demikian, kajian ini menandakan bahawa pengekaln pengetahuan, mahupun dalam bentuk jelas atau tersirat, adalah penting bagi syarikat untuk memperoleh kelebihan bersaing. Daripada keputusan kajian ini, syarikat boleh memupuk budaya dan struktur yang sesuai bersama-sama dengan teknologi dan proses-proses pengetahuan yang baik until mengekalkan pengetahuan syarikat.

## **ABSTRACT**

This research seeks to identify the antecedents which act as the enablers to the success of knowledge retention in an organization, as well as the outcome of knowledge retention on organization's performance. The antecedents studied are organizational culture of collaboration and trust, organizational structure of formalization and centralization, Information Technology (IT) support and knowledge process capabilities which include knowledge acquisition, conversion, application and protection process. Data was collected from 101 companies throughout Peninsular Malaysia. The result of this study indicates that collaboration, IT support and knowledge conversion and protection process lead to higher degree of explicit-oriented knowledge retention. On the other hand, for tacit-oriented knowledge retention, the only significant relationship found is collaboration where it is positively related. Besides, the study also shows that both explicit and tacit knowledge retention lead to better organizational performance. This study implies that knowledge retention, whether it is in explicit or tacit form, is important for organization to gain competitive advantage. From this research, organization could cultivate the right organizational culture and structure together with putting in place the right technology and knowledge processes capabilities to retain its organizational knowledge.

## **Chapter 1**

### **INTRODUCTION**

#### **1.1 Introduction**

This chapter introduces the research outline of the study. The chapter illustrates the background, problem statement, research objectives, research questions, definition of key terms and significant of study.

#### **1.2 Background**

In the current 21<sup>st</sup> century, in the face of increasing globalization, the velocity and dynamic nature of the new market place has posed a challenge on how companies continuously create value that is sustainable over time. Drucker (1995) claims that managing knowledge is the only way to achieve sustainable competitive advantage in today's markets. Organizations around the world echo this emphasis on the importance of knowledge; that is, to learn and apply that learning as the work is performed may be the only sustainable source of competitive advantage (Liedtka, 1996).

In other words, we are said to live in a knowledge economy where value stems from professional workers and how they are organized and less from physical products (Drucker, 1997). These professional workers are ingredient that ensures the future survival, expansion, competitiveness and continued success of the organization (McQuade et al., 2007). However, situation today becomes more complicated by the fact that with globalization, it has greatly facilitated employees' mobility or movement either within same organization, in different

geographical locations or between different organizations. With this high employee's mobility, knowledge from the key professional workers is drained and lost. In the motion of combating this brain drain phenomenon, employee turnover intention has long become one of the most widely researched topics from researchers in organization science (Mobley, 1982; Hulin, 1991; Millar & Wheeler, 1992; Johnston et al., 1993). These researches focus on issues related to Human Resource (HR) policy and managerial practices such as compensation and benefits, job evaluation and promotion, career growth and so on. The ultimate goal is to retain employees in the organization.

However, as being stated by Kransdorff (1996), the current situation in the market of high levels of employee mobility and job disruption are "unavoidable". Based on research statistic (Young, 2006), companies are faced with people leaving to join other companies and with the average worker changing jobs 10 times between the ages of 18 and 37, the churn rate amongst staff is truly a concern. This is further worsen by not only natural staff turnover, but retirement and job changes caused by restructuring, mergers, takeovers, downsizing. McQuade et al. (2007) quotes from a report, stating that within the next five years, 20% of the European working population will go into retirement (DG for Employment, Social Affairs and Equality of the European Commission, 2005). Similarly, one of the crucial organizational challenges facing NASA is the issue of fully 50% of NASA employees will be eligible for retirement (De Long, 2004).

This high turnover phenomenon is also prevalent in Malaysia, according to annual surveys by Malaysian Employers Federation (MEF 2004, 2005) report that the annual labor turnover rates for 2003 and 2004 were high, approximately 17 per cent and 16 per cent respectively. The

turnover rate can even go up to as high as 65.7% as that reported for operational hotel workers for the year 1998/1999 (Malaysian Association of Hotels, 2000).

The phenomenon described above has posed a major threat in knowledge drain and obsolete; where it eventually impaired the competitive advantage of the organizations. Implementing strategies to retain employees is no longer sufficient, or even irrelevant in current business environment. Therefore, the real challenge is on how to capture and harness the knowledge which is in these professionals' heads – their experience, knowledge and judgment. In short, the ability to enable knowledge retention in an organization has become increasingly importance.

### **1.3 Research Problem**

The need for knowledge retention is a global issue. As aptly put by De Long (2002), changing workforce demographics, marked by an aging labor force, more competitive recruiting and faster turnover among younger employees, are creating unprecedented knowledge retention problems in many industries, threatening to reduce the capacity for innovation, growth and operational efficiency. According to Young (2006), it's such a problem that some industries have given in a name: "The Great Crew Change" is the euphemism used in the oil industry to describe this phenomenon (based on routine changing of drilling crews on drilling rigs).

A survey by KPMG Peat Marwick (1998) conducted among European companies found that almost half of the group of companies reported having suffered a significant setback from losing key staff with 43% experiencing impaired client or supplier relations and 13% facing a loss of income because of the departure of a single employee (Alavi & Leidner, 2001). More

importantly, turnover often results in departing employees migrating to competing firms, creating an even more critical situation, since this knowledge can now be used against the organization. Employees turnover has in fact been accelerating over the past decade, a recent study by Lim (2001), reports that Malaysian employees are only willing to stay with their current organizations for less than 3 years.

Therefore, there is a renewed interest in the way in which knowledge can be captured, shared and retained to improve performance. The ability to effectively manage worker knowledge is the primary resource for sustaining competitive advantage and delivering organizational value. If we look into the extend of literatures conducted, numerous studies have researched into knowledge management, but very few have researched on knowledge retention per se. Among the studies on knowledge retention, most of the focus is on step-by-step process or best practices to combat knowledge loss. As mentioned by Miler (2006), knowledge retention has been recognized as a central problem, and a vast number of approaches, ideas and recommendations are floating on the market-place that promise to help you to plug the brain drain. However, empirical studies on knowledge retention are indeed very limited.

This is even more prevalent in Malaysia where knowledge management research is still in its infancy and mostly focuses on factors and practices of knowledge management as a whole. For instance, Lim and Hase (2007) conducted a study on the use of knowledge management as a strategic tool and the factors affecting the use of KM in the Malaysian aerospace industry. Another research is by Syed-Ikhsan and Rowland (2004) regarding performance of knowledge transfer at the Ministry of Entrepreneur Development of Malaysia. Besides this, some examples of knowledge management researches from USM MBA are the study on knowledge

management practices, strategy and success (Ko, 2003; Ong, 2003; Toh 2003); and study focusing on success factors of knowledge transfer (Fun, 2004).

In short, we can see that managers from organizations in Malaysia are not aware of the importance of knowledge retention. They have relatively low understanding on the concept of knowledge retention. Even if they do, usually, knowledge retention is not a priority because everybody is busy with day-to-day business. Therefore, this study aims to close that gap and increase the level of awareness in providing an empirical research focusing on the area of knowledge retention for organizations in Malaysia.

#### **1.4 Research Objectives**

The objective of this study is to identify the factors which act as the enablers to the success of knowledge retention in an organization, as well as the outcome of knowledge retention on organization's performance.

#### **1.5 Research Questions**

To achieve the above objective, the study tries to answer the following research questions:

- 1) What is the impact of organizational culture such as collaboration and trust on knowledge retention?
- 2) What is the impact of organizational structure such as formalization and centralization on knowledge retention?
- 3) What is the impact of technology on knowledge retention?
- 4) What is the impact of knowledge process capability such as acquisition, conversion, application and protection on knowledge retention?



- 5) What is the impact of explicit and tacit knowledge retention on organizational performance?

## **1.6 Significance of Study**

In Malaysia, the study regarding knowledge management is still at its infancy stage. Knowledge management is a broad and complex field; and critical to Malaysian organizations' competitive advantage in the face of globalization and knowledge-based economy. It has become even more, providing the high employees mobility phenomenon. Therefore, this study is timely to provide senior management with insights into the important enablers of knowledge retention, as well as the outcome of effective knowledge retention. From this research, Malaysian organizations could cultivate the right organizational culture and structure together with putting in place the right technology and processes to retain its organizational knowledge.

## **1.7 Definition of Key Terms**

For the purpose of this study, the following definitions are referred specifically.

Table 1.1  
*Definition of Key Terms*

<b>Key Terms</b>	<b>Definition</b>	<b>Source</b>
Collaboration	Degree of active support and helps in organization.	Choi & Lee (2003b)
Trust	Degree of reciprocal faith in others' intentions, behaviors, and skills toward	Choi & Lee (2003b)

	organizational goals.	
Formalization	Degree of formal rules, procedure, and standard policies.	Choi & Lee (2003b)
Centralization	Degree of authority and control over decisions.	Choi & Lee (2003b)
Technology	In this study, technology is viewed as a supportive tool to facilitate and manipulate the management of knowledge resources.	Choi & Lee (2003b)
Knowledge Process Capability	Degree of knowledge management processes available in organization covering the following area: <ul style="list-style-type: none"> <li>i. acquisition</li> <li>ii. conversion</li> <li>iii. application</li> <li>iv. protection</li> </ul>	Gold et al. (2001)
Knowledge Retention	<p>Preservation of changes of variations in the behaviors adopted by a firm and the subsequent dispersion of these changes across the firms' units.</p> <p>From the perspective of the organization, there is no tangible difference between the retention of explicit and tacit knowledge;</p>	<p>Madsen et al. (2002)</p> <p>Beckett et al. (2000)</p>

	providing it is accessible from the point of exploitation, it can be said to be possessed by the organization.	
- Explicit oriented degree	Degree of knowledge codification; and sharing through codified forms.	Choi & Lee (2003a)
- Tacit oriented degree	Degree of help and mentoring by experts and co-workers; and informal dialogues for knowledge sharing.	Choi & Lee (2003a)
Organizational Performance	Degree of overall success, market share, growth rate profitability and innovativeness in comparison with major competitors.	Choi & Lee (2003b)

## 1.8 Organization of Remaining Chapters

In this study, in the next chapter, a write-up on literature review is presented. Firstly, the paper starts by describing and defining knowledge and knowledge management (KM). Knowledge management is increasingly positioned as a viable approach to the new age of business and a growing number of professionals and academics are working to elaborate its principles and application technologies (Chauvel & Despres, 2002). Next, knowledge retention is discussed and also the various factors which influence knowledge retention followed by the formulation of the theoretical model.

Chapter three focuses on describing the methodology deployed in conducting the research. The research design and instrumentation used are discussed in this chapter.

Chapter four presents in details the results and finding of the research, which will be summarized and discussed in chapter five. Apart of the summary, chapter five also states the research limitation and suggestion for future research.

## **Chapter 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

For better understanding of the present study, a comprehensive review of previous literature is carried out. To start with, this chapter explains the underlying theory – resource-based view (RBV) and knowledge-based view (KBV). Then, it introduces the concept of knowledge and knowledge management. Next it dives into more detail discussion on knowledge retention; as well as the factors which influence the success of knowledge retention – organizational culture, structure, technology and knowledge process capability; follow by the relationship of knowledge retention with organizational performance. Finally, the chapter discusses the theoretical framework and hypotheses development.

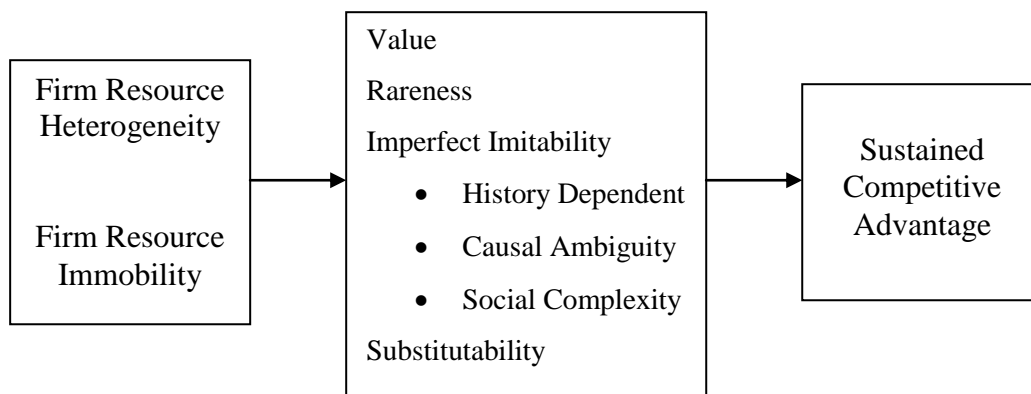
#### **2.2 The Resource-based and Knowledge-based View**

Over the last decade, strategic management research has increasingly emphasized the roles of knowledge in developing a firm's resource base. This observation is drawn from the knowledge-based view theory of the firm. The KBV has itself been derived from the resource-based view. Both the KBV and RBV approaches emphasize the role of the firm and its use of its resources/knowledge as a source of competitive advantage (Clarke & Turner, 2003).

Edith Penrose (1959) was one of the first scholars to recognize the importance of resources to a firm's competitive position. She argued that a firm is more than an administrative unit; it is a collection of productive resources at the disposal of which between different users and over

time is determined by administrative decision. She further added that, the size of the firm is best gauged by some measure of the productive resources it employs. Beside Penrose, Rubin (1973) is also argued to be one of the few scholars to conceptualized firms as resource bundles. Rubin emphasized that resources alone were not much use unless they are processed to make them into useful products or services.

Later, Wernerfelt (1984), building upon the work of Penrose and Rubin, suggested ways to analyze a firm's resource position on how this resource can lead to high profits; where he uses Porter's five competitive forces (Porter, 1980). Wernerfelt (1984) further proposed that an acquisition can be seen as a purchase of a bundle of resources in a highly imperfect market. However, Wernerfelt (1995) in his newer article acknowledges that his 1984 article was terse and abstract. Therefore, it was until Barney (1991)'s paper which is then widely regarded as the first formalization and more concrete RBV theory. Barney formulated a framework where he identified four empirical indicators of the potential of firm resources to generate sustained competitive advantage as shown in figure 2.1. It is based on the assumption that firms' resources are heterogeneity and immobile. However, he also emphasized that the existence of substitutes by itself does not mean that a particular firm resource cannot be a source of sustained competitive advantage; as long as these substitutes have to be either not rare, or highly imitable, or both.



*Figure 2.1. Resourced-based view of the firm.*  
*Source: Barney (1991)*

Subsequently, a great deal of studies is based on RBV as well as the extension from resource possession to resource exploitation or resource capabilities (Leonard-Barton, 1992; Kogut & Zander, 1992; Russo & Fouts, 1997; Newbert, 2007). According to Amit and Shoemaker (1993), there is a clear distinction between resources (stocks of available factors that are owned or controlled by the firm) and capability (firm's capacity to deploy resources). Thus, a firm's resources must be managed and leveraged in order to give the firm its competitive advantage (Peteraf, 1993; Henderson & Cockburn, 1994).

Evolving from RBV is the knowledge-based theory of the firm by Grant (1996). The knowledge-based view (KBV) considers knowledge as a distinctively unique resource (Kogut & Zander, 1992; Grant, 1996) and views the firm as a dynamic, evolving system of knowledge production and utilization (Spender, 1996). Grant (1996) states that at the heart of this theory is the idea that the primary role of the firm, and the essence of organizational capability, is the integration of knowledge. This in turn, raising question about what managerial choices need to be made to best create, retain and disseminate organizational

knowledge. Therefore, this study looks into what are the enablers for retaining knowledge, as well as the outcome towards better organizational performance.

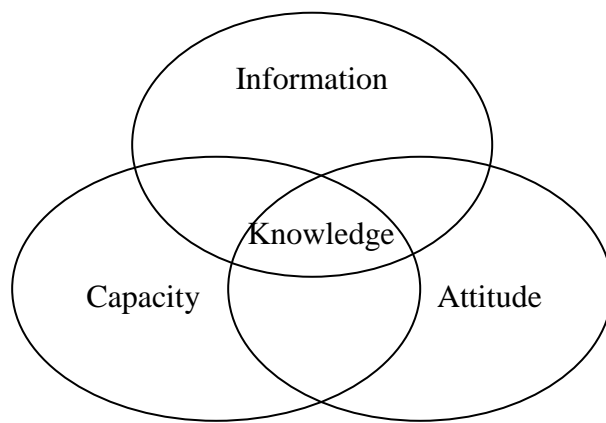
### **2.3 Knowledge**

As discussed in the knowledge-based view, knowledge is the scarce and valuable resource that gives firms competitive advantage. This is even more so in the current knowledge-economy and globalization era. As mentioned by Gold et al. (2001), a hallmark of the new economy is the ability of organizations to realize economic value from their collection of knowledge assets as well as their assets of information, product distribution and affiliation.

Therefore, ‘what is knowledge?’ It is helpful to think of knowledge in relation to its cousins – data and information (Ford & Chan, 2003). Data is the raw material for information, which is often stored in databanks (Davenport & Prusak, 1998). Information is data that has been organized so that it has meaning to the recipient (Turban et al., 1996). Knowledge, on the other hand, is a product of human reflection and experience. People who are knowledgeable not only have information, but also have the ability to integrate and frame the information within the context of their experience, expertise and judgment (Grover & Davenport, 2001).

In short, we can say that knowledge is characterized by information, a capacity and an attitude. This is illustrated in figure 2.2. According to Beijerse (2000), with regard to the optimum use of knowledge, it is important that all three of these factors are given equal and sufficient attention.





*Figure 2.2. Three facets of knowledge.  
Source: Beijerse (2000)*

Information (Beijerse, 2000) – Knowledge is an amount of information that is necessary to function and achieve. It is important that this information is easily accessible within the organization and accessible for everyone.

Capacity (Beijerse, 2000) – Knowledge is, besides information, the capacity to make information from data and to transform it into useful and meaningful information. It is the capacity with which one this creatively, interprets and acts.

Attitude (Beijerse, 2000) – Above all, knowledge is an attitude. It is attitude that makes people want to think, interpret and act. Within organizations, it is with regard to the factor attitude, important for example to stimulate people's curiosity and inclination to innovate.

### 2.3.1 Explicit vs. Tacit Knowledge

Many types of knowledge have been suggested in the literature. Cormican and Dooley (2007) have summarized them as shown in table 2.1. Dependent on context, knowledge is a resource that is always located in an individual or a collective, or embedded in a routine or process (De Long & Fahey, 2000). In other words, most literatures have divided knowledge into explicit and tacit knowledge. Explicit knowledge is the system-bound side of knowledge (information) and the more people-bound side is called tacit knowledge (capacity and attitude) (Beijerse, 2000).

Table 2.1

*Classification of knowledge types*

Classification	Description	Reported by
Tacit knowledge	Implicit, personal knowledge	Polanyi (1996)
Explicit knowledge	Codified knowledge, can be communicated	
Migratory knowledge	Shared knowledge can move	Badaracco (1991)
Embedded knowledge	Cannot be separated knowledge from an entity	
Experiential knowledge	Knowledge that is pragmatic and practical	Wikstrom et al. (1994)
Reported knowledge	Knowledge that is published or disclosed	
Intimate knowledge	Knowledge that is deep seated or experienced	
Declared knowledge	Knowledge that is professed or purported	
Cognitive knowledge	Know what something is about	Stewart (1997)
Advanced skills	Know how to do something	
Systems understanding	Know why something should be done	
Self-motivated creativity	Care why something should be done	
Process knowledge	Methods for doing things well	Ruggles (1997)
Factual knowledge	Basic information about people and things	
Catalogue knowledge	Knowing where things are	
Cultural knowledge	Understanding values, rules and norms	

Source: Cormican & Dooley (2007)

Explicit knowledge, unlike tacit knowledge, can be embodied in a code, or a language, and as a consequence it can be communicated easily. Teaching and learning in schools occur through communication and assimilation of explicit knowledge (Koskinen, 2003). In an organization, explicit knowledge can be codified and stored in databases where it can be accessed and used easily by employees in the company.

On the other hand, tacit knowledge is that which an individual has collected while he has performed different tasks and duties in different contexts and situations of his or her life. Thus, tacit knowledge represents knowledge based on the experience of individuals. It expresses itself in human actions in the form of evaluations, attitudes, points of view, etc. (Koskinen, 2003). According to Cook and Yanow (1993), much of organizational knowledge is tacit. That is, it is generated through the experience which consists of the daily work by employees. As such, for organization with high turnover rate, where these experienced employees leave the company would certainly cause knowledge loss and negatively impact organization's competitiveness. Table 2.2 shows the main differences between the two types of knowledge.

Table 2.2

*Two types of knowledge*

<b>Tacit knowledge (subjective)</b>	<b>Explicit knowledge (objective)</b>
Knowledge of experience (body)	Knowledge of rationality (mind)
Simultaneous knowledge (here and now)	Sequential knowledge (there and then)
Analog knowledge (practice)	Digital knowledge (theory)

Source: Nonaka and Takeuchi (1995)

In order to combat knowledge loss, organizational knowledge must be a combination of explicit and tacit knowledge. Different organizations have different degrees of combination of knowledge explicitness and tacitness (refer figure 2.3). For example, with reference to the design knowledge in small manufacturing enterprises (Wong & Radcliffe, 2000), the knowledge involved contains explicit theories and formulae on one hand; and on the other hand, the knowledge of applying such theories requires the understanding of the theories as well as the inarticulable components of judgment and ‘gut feel’ on what and how to apply when and where. Knowledge with both explicit and tacit elements is required.

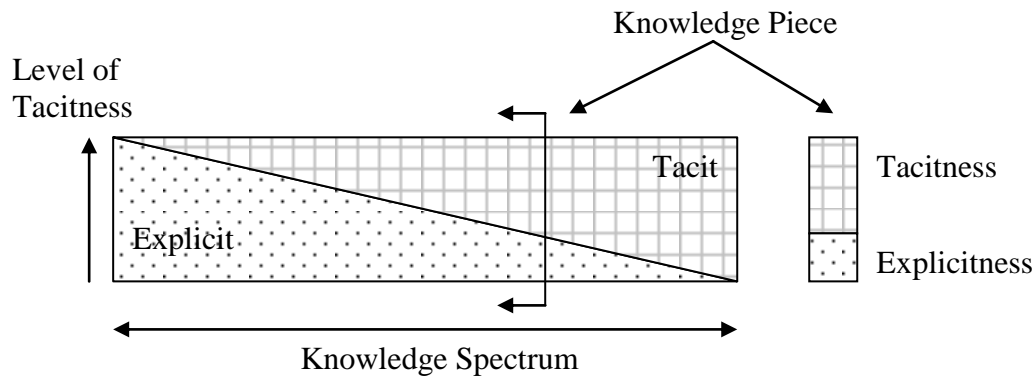


Figure 2.3. Spectrum of explicitness/tacitness of knowledge.  
Source: Wong and Radcliffe, (2000)

## 2.4 Knowledge Management

Exploitation of knowledge (either explicit or tacit) is important for sustainable competitive advantage of an organization. Knowledge Management (KM) is said to bring amazing benefits to various companies; however it also brings huge fiasco to many companies. ‘How do we define knowledge management?’ and ‘why knowledge management is so important?’ According to Arora, Ravi (2002), there are three objectives of KM. First objective is to avoid re-invention of the wheel in organizations and reduce redundancy of knowledge-based activities by successfully the existing knowledge assets. The second objective of KM is to help the organization in continuously innovating new knowledge that can be exploited for creating value. The third objective of KM is to continuously increase the competence and skill level of the employees.

Knowledge Management is viewed as the deliberate strategy of getting the right knowledge, to the right place, at the right time (Chase, 1997; Hendriks & Vriens, 1999). Knowledge management is purported to increase innovativeness and responsiveness of organizations (Hackbarth, 1998). However, there is no universally accepted definition of KM (Earl & Scott,

1999). Others refer KM to identifying and leveraging the collective knowledge in an organization to help the organization compete (von Krogh, 1998). Another definition of KM by Yang and Lee (2006) is “the collection of processes that govern the creation, dissemination and leveraging of knowledge to fulfill organizational objectives”. Marshall (1997) considered that KM refers to the harnessing of “intellectual capital” within an organization.

In addition, some other studies have addressed the role of Information Technology (IT) in KM. Technology plays an important role in KM, where organizations have actively promoted a class of information system - Knowledge Management System (KMS). KMS are IT-based systems developed to support and enhance the organizational processes of knowledge creation, storage/retrieval, transfer, and applications (Alavi & Leidner, 2001).

For this study, knowledge management is defined as (Nicholas, 2004):

“A systematic process for creating, acquiring, disseminating, leverage and using knowledge to retain competitive advantage and to achieve organizational objectives.”

KM systems and practices is becoming a competitive weapon where it is an issue of organizational survival or innovation. The KPMG (2003) survey on KM among top 500 business organizations in UK, France, Germany and The Netherlands shows that in the commercial world, KM is approaching a highly mature level. It is interesting to note from the survey results that the majority of respondents indicated knowledge as a strategic asset and KM was associated with financial benefits and growing business opportunities.

In one widely-cited KM framework, Gold et al. (2001) brings forward a knowledge management model from an organizational capability perspective. Building upon the

knowledge-based view, Gold et al. (2001) propose two organizational capabilities that influence organizational performance. First is knowledge infrastructure capability - structure, culture and technologies. Second, an organization's knowledge process capability for acquiring, converting, applying and protecting knowledge also influence organizational performance (Gold et al., 2001). Therefore, this study extends on Gold et al.'s framework where these organizational capabilities may increase the retention of knowledge which is the key asset to sustain competitive advantage.

## **2.5 Knowledge Retention**

As discussed, knowledge is a priced asset in an organization. Thus, organizations should have strategy to guide the acquisition and retention of knowledge. This is increasingly important especially for organizations with high turnover rate, where these organizations rely heavily on expert employees and sometimes suffer massively when these experts leave.

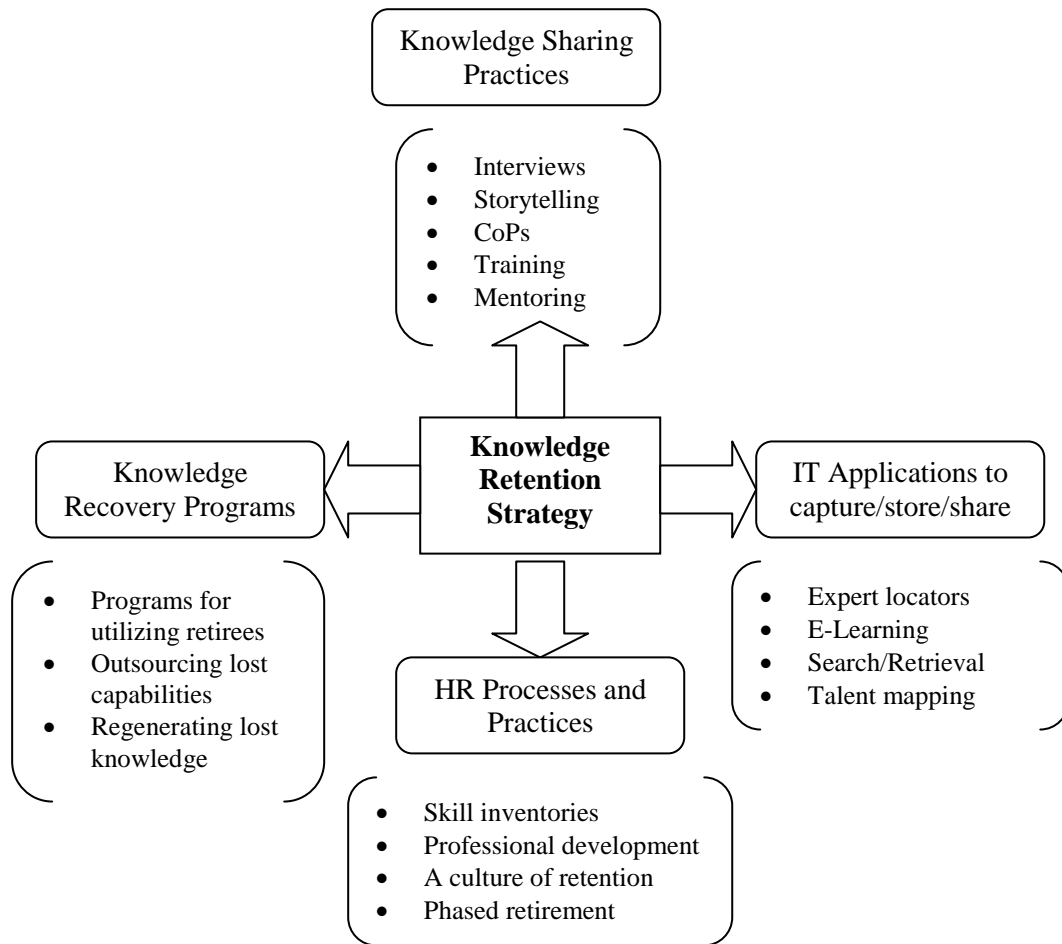
According to Madsen et al. (2003), two interrelated activities underline knowledge retention. First, retention involves the preservation of changes adopted by an organization. The content that is preserved is stored in different retention bins that form the organization's memory system (Walsh & Ungson, 1991). The second activity underlying retention is the wider dispersion of changes adopted by the organization across its subunits. Through dispersion, an organization leverages its new and past knowledge across space and time. In short, knowledge retention is the preservation of changes of variations in the behaviors adopted by an organization and the subsequent dispersion of these changes across the organization's units (Madsen et al., 2003).

Furthermore, Walsh and Ungson (1991) states that knowledge is stored in various physical locations, individuals and accepted procedures where Walsh and Ungson refer to as organizational memory (OM). In other words, knowledge is embedded in three basic elements of organizations – members, tools and tasks (Argote & Ingram, 2000). Members are the human components of organizations. Tools, including both hardware and software, are the technological component. Tasks reflect the organization's goals, intentions, and purposes. As mentioned by Beckett et al. (2000), from the perspective of the organization, there is no tangible difference between the retention of explicit and tacit knowledge; providing it is accessible from the point of exploitation, it can be said to be possessed by the organization.

In view of this, employees are an important part of an organization's memory system as they form the social networks required for the creation and transfer of tacit knowledge and skills (Olivera, 2000; Currie & Kerrin, 2003; Swart & Kinnie, 2003). If enough key people or teams leave, significant damage can be done to organizational memory which impact the organization's competitive advantage (Lesser & Prusak, 2001; Stovel & Bontis, 2002; Miler, 2006; Young, 2006). De Long (2004), a researcher specializes in knowledge retention and workforce development solutions has proposed a strategic framework in resolving the workforce development challenges posed by increased baby boomer retirements and high turnover among mid-career employees. The framework as shown in figure 2.4 shows a four-part construct - knowledge transfer practices, IT applications to capture, store and share knowledge, HR processes and practices, as well as knowledge recovery initiatives (De Long, 2004). He emphasizes that to build a retention culture, organizations must pay attention to behaviors that support knowledge sharing. However, the type of initiative that is appropriate



for knowledge sharing will depend on the type of knowledge being transferred: Is it implicit or explicit? Is it rule based or know how? (De Long 2004).

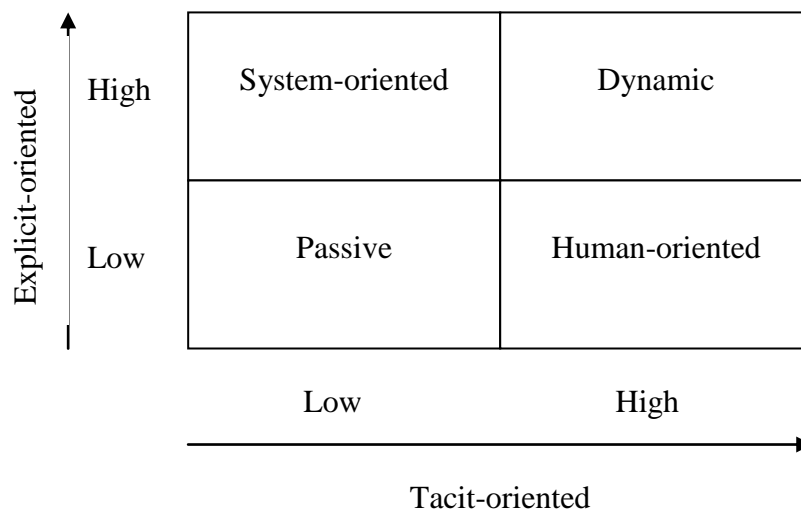


*Figure 2.4. Strategic Framework for Knowledge Retention.*  
*Source: De Long (2004)*

### 2.5.1 Codification vs. Personalization

A few researchers have also looked into the management and retention of organizational knowledge mainly from the perspective of explicit and tacit form. For instance, Choi and Lee (2003a) have proposed that there are different types of KM styles. Different organizations deploy different KM styles in term of knowledge retention. As quoted by Choi and Lee, from the explicit and tacit-oriented perspectives of knowledge, KM can be categorized into four

styles: dynamic, system-oriented, human oriented and passive (refer figure 2.5). The explicit-oriented level shows the degree of knowledge retention in explicit form, such as the degree of codifying and storage of organizational knowledge needed for a person to access and use it easily. On the other hand, the tacit-oriented level corresponds to the degree of knowledge retention in tacit form, where as explained by Choi and Lee (2003a), is the acquisition and sharing of organizational knowledge through personal interaction.



*Figure 2.5. Four KM style.  
Source: Choi and Lee (2003a)*

Another well-cited literature, Hansen et al. (1999) also provides view of managing knowledge in two different method – codification and personalization. Codification resulted in explicit knowledge retention where it acquires and shares knowledge by reusing the knowledge explicitly. Personalization relies on experts’ interactions which resulted in tacit knowledge retention. These different styles of knowledge retention are also being emphasized by other researchers although they are given different terms. Aoshima (2002) explores effective ways of retaining knowledge involved in new product development. Aoshima presents two mechanisms – standardized mechanism and human based mechanism. In the field of Human

Resource (HR), Haesli and Boxall (2005) explore how the different styles, codification and personalization can be used with HR strategy. In this study, organization with knowledge retention strategy which emphasis on explicit knowledge is refer to as codification, while strategy which emphasis on tacit knowledge is refer to as personalization.

Some large consulting companies such as Anderson Consulting and Ernst & Young have pursued a codification strategy (Hansen et al., 1999). Knowledge is codified using a “people-to-documents” approach. They invested highly in Information Technology (IT) to ensure that the explicit knowledge retention effective. Ernst & Young has 250 people at the Center of Business Knowledge who manage the electronic repository and help consultants find and use information (Hansen et al., 1999). By contrast, some other consulting firms such as Boston Consulting Group and McKinsey emphasize a personalization strategy (Hansen et al., 1999). They focus on dialogue between individuals through brainstorming sessions and one-on-one conversations. As stated by Aoshima (2002), knowledge obtained through past experience may be partially stored in individuals. Therefore, it is important to bring these persons into current projects. This is one way to transfer knowledge across generations. As a result, both codification and personalization strategy may reduce knowledge loss through the departure of employees.

On the other end, there are another two KM styles as proposed by Choi and Lee (2003a). Organizations with passive style show little interest in KM. In the current turbulent business environment, this style reduces the organization’s competitive advantage tremendously. In contrast, organizations with dynamic style emphasize both codification and personalization approach, and are thus more integrative and aggressive. However, Hansen et al. (1999) found